**UNITED STATES DEPARTMENT OF COMMERCE**
**National Oceanic and Atmospheric Administration**
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1999-240

September 9, 1999

Mr. Don Ostby
Forest Supervisor
Umpqua National Forest
P.O. Box 1008
2900 Stewart Parkway
Roseburg, Oregon 97470

Re: Section 7 Consultation on Actions Affecting Oregon Coast Coho Salmon, Oregon Coast Steelhead, and Umpqua River Cutthroat Trout

Dear Mr. Ostby:

In a June 14, 1999 letter, the Umpqua National Forest (UNF) requested initiation of Endangered Species Act (ESA) consultation on several proposed actions which *may affect* Oregon Coast (OC) coho salmon. The UNF already consulted on the effects of each of the actions on Umpqua River (UR) cutthroat trout prior to the listing of OC coho salmon and wish to confirm that the effects of the actions would be the same for OC coho salmon as for UR cutthroat trout. In the biological assessment (BA) attached to the June 14, 1999 letter, which we regard to supersede any previous BAs, the UNF provided information on the effects of several *likely to adversely affect* (LAA) actions on OC coho salmon and its habitat (and also requested reinitiation of consultation for UR cutthroat trout on two actions which the UNF now believes are LAA this species). The UNF also provided the names of twenty *not likely to adversely affect* (NLAA) actions. Furthermore, it was noted in the June 14, 1999 letter, that the effects of the described actions on OC steelhead would be the same as for UR cutthroat trout.

This letter provides the National Marine Fisheries Service's (NMFS) biological opinion (BO) that eight LAA actions described in BA would not likely jeopardize the continued existence of OC coho salmon, UR cutthroat trout, or OC steelhead. We will address the NLAA actions in a separate consultation. This consultation on UNF actions is conducted under section 7(a)(2) of the ESA and its implementing regulations, 50 CFR Part 402.

Specifically, the UNF propose the Coffin Creek, Deep Cut Creek, Middle Jackson, Whitecap, and Shadow timber sales; the Skip Knutson-Vandenberg (KV) restoration project; and the Dixon

Creek Bridge and Site 5 Emergency Repair of Federally-Owned (ERFO) road projects. The BA and other information the UNF provided describe the environmental baseline and the effects of the eight actions. We consider actions which have taken place prior to the issuance of this letter to be a part of the environmental baseline for the respective watersheds.

The NMFS listed the OC coho salmon Evolutionarily Significant Unit (ESU)[1] as threatened under the ESA on August 10, 1998 (63 FR 42587), with an effective date of October 9, 1998; critical habitat for this ESU was proposed on May 10, 1999 (64 FR 24998). The UR cutthroat trout was listed as endangered under the ESA by NMFS on August 9, 1996 (61 FR 41514). Critical habitat for this species was designated on January 9, 1998 (63 FR 1388). On April 5, 1999, the NMFS proposed to reclassify UR cutthroat trout as a candidate species because recent genetic studies have shown that the Umpqua River ESU is likely a portion of a larger Oregon Coast cutthroat trout ESU which is not thought to be in danger of extinction (64 FR 16397). UR cutthroat trout, however, will remain listed as endangered until a final rule is published. On March 19, 1998 (63 FR 13347), NMFS determined that the OC steelhead ESU did not warrant listing under the ESA, but considers the ESU to be a candidate species.

The NMFS adopted a habitat-based jeopardy analysis (NMFS 1997a, b, and c). OC coho salmon and OC steelhead habitat coincides with UR cutthroat trout habitat in the subject proposed action areas. UNF personnel made the effects determinations in the BA following procedures described in NMFS (1997a, b, and c). The effects of the individual actions proposed in the BA were evaluated by UNF biologists at the project scale using criteria based upon the biological requirements of UR cutthroat trout, OC coho salmon, other potentially affected anadromous salmonids, and the Aquatic Conservation Strategy (ACS) objectives of the Northwest Forest Plan (NFP) (USDA and USDI 1994). The UNF biologists also evaluated the potential effects of the proposed actions on the watershed scale and in the longterm, in the context of watershed processes. The Level 1 streamlined consultation team for the UNF has defined *longterm* for ESA consultation purposes as about a decade, while *short-term* effects would occur for a lesser period, most typically a few months to a few years. The Level 1 streamlined consultation team for the UNF met several times to review the UNF's effect determinations for the subject actions. The team members concurred with the ESA effects determinations.

[1]For the purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species.

**Proposed Actions**

The proposed actions would occur in the Middle South Umpqua, Jackson Creek, and Elk Creek fifth field hydrologic unit codes (HUCs)[2] of the South Umpqua River and the Little River fifth field HUC of the North Umpqua River, in Douglas County, Oregon. Specifically, in the Middle South Umpqua watershed (a fifth field HUC will be considered a watershed for consultation purposes), the Skip KV project is proposed for the Lower Boulder/Pinnacle Creek and Ash Creek sixth field HUCs. In the Jackson Creek watershed, the Coffin Creek timber sale (Coffin) is proposed for the Coffin Creek sixth field HUC, the Deep Cut Creek timber sale (Deep Cut) is proposed for the Deep Cut Creek sixth field HUC, and the Middle Jackson timber sale (Middle Jackson) is proposed for the Middle Jackson sixth field HUC. In the Elk Creek watershed, the Dixon Creek Bridge ERFO project (Dixon) is proposed for the Dixon-Golden sixth field HUC, and the Site 5 ERFO project (Site 5) is proposed for the Lower Drew Creek sixth field HUC. Finally, in the Little River watershed, the Whitecap timber sale (Whitecap) is proposed for the White Creek sixth field HUC while the Shadow timber sale (Shadow) is proposed for the Black Creek sixth field HUC. Environmental Assessments (EAs), Biological Evaluations (BEs) and other documents (which were appended to the UNF's BA) have detailed information on each of the actions, but brief summaries are provided below.

*Skip KV*. In Skip, the UNF proposes road obliteration, road upgrading, road inactivation, and log landing recontouring in the Lower Boulder/Pinnacle Creek and Ash Creek sixth field HUCs of the Middle South Umpqua watershed (a part of the Upper South Umpqua Tier 1 Key Watershed). The UNF would obliterate 0.32 miles of the 2719-905 road, including removal of a non-fishbearing intermittent stream culvert, and would upgrade 0.65 miles of the 2800-321 road in the Lower Boulder/Pinnacle Creek sixth field HUC. The road upgrade would considerably lessen the effects of the road on hydrology and sedimentation through culvert removal on non-fishbearing intermittent streams, construction of low water crossings and driveable water bars, bank stabilization, construction of cross drains, and road blocking. The 0.06 miles of the 2800-345 road would be inactivated in the Ash Creek sixth field HUC by cross drain construction and access blockage. Recontouring of the log landing would occur outside of Riparian Reserves (RR) in each of the sixth field HUCs and would lessen the likelihood of fill failure resulting in sediment transmission to streams. All potential sediment-

[2] Stream drainages can be arranged in nested hierarchies, in which a large drainage is composed of smaller drainages. The UNF uses a system in which these drainages are numbered in a computer data base for analytical purposes. The numerical identifier of a particular drainage in this data base (which is located in a specific column or "field" in the data base) is called its hydrologic unit code, or HUC. This HUC increases with decreasing drainage area, thus a fourth field HUC (such as the South Umpqua River) is composed of several fifth field HUCs (such as Jackson Creek, Elk Creek, etc.), and so on. The Northwest Forest Plan determined that the scale for Watershed Analyses should be 20 to 200 square miles, which often corresponds to a fifth field HUC.

producing work would be limited to the June through October dry season; work in the streams would be further restricted to the Oregon Department of Fish and Wildlife (ODFW) in-water work period of July 1 through September 15. The UNF's contractor will also be required to take specific actions to minimize or prevent erosion and stream sedimentation/contamination.

*Coffin*. The UNF proposes to harvest timber from about 262 acres of the Matrix land allocation in Coffin, using commercial thin, understory removal, and/or pine health prescriptions on the 12 units in the Coffin Creek sixth field HUC (a part of the Upper South Umpqua Tier 1 Key Watershed). Commercial thinning from below would occur in near-pure single cohort Douglas-fir stands, while the pine health prescription would remove competing trees around individual ponderosa and sugar pine. Overstocked understories of shade tolerant and fire intolerant species (primarily white fir) would be harvested in understory removal. These treatments are intended to partially restore the stands to the historic, pre-fire suppression condition. Depending on the unit, canopy closure is currently about 60 to 70% and would be reduced by the harvest to about 50% on average. Follow-up slash treatment would be predominantly underburning (139 acres), with hand-piling and burning in 45 acres. Most of the yarding would be by partial-suspension cable with the remainder helicopter-yarded. None of the timber harvest would occur within RR.

No new roads would be constructed for Coffin, but 21.57 miles of existing roads would be upgraded, 17.2 miles of existing road would be inactivated, and 5.3 miles of existing road would be obliterated; some of these activities would occur within RR. Upgrading consists of repairing and resizing culverts to pass 100-year flood events, adding additional drainage structures to reduce stream channel extension, and reshaping and resurfacing when necessary. Road inactivation consists of closing roads, pulling culverts, water barring at frequent intervals, and otherwise reducing the risk of road erosion.

*Deep Cut*. The UNF proposes to harvest timber from about 359 acres of the Matrix land allocation in Deep Cut, using final removal (89 acres), pine health (78 acres), or a combination of the pine health/understory removal prescriptions (192 acres) on the 10 remaining units in the Deep Cut creek sixth field HUC (a part of the Upper South Umpqua Tier 1 Key Watershed). Under the final removal prescription, old growth timber would be harvested from stands that had previously been partially cut; the harvest would leave the units with approximately 15% old growth, as well as with the existing young Douglas-fir and pine. The pine health and understory removal prescriptions are described above, under Coffin. Depending on the unit, canopy closure is currently about 60 to 70% and would be reduced, on average, to about 50% by the harvest. Follow-up slash treatment would be predominantly hand-piling and burning (246 acres) with underburning on 86 acres. Most of the yarding would be by partial-suspension cable but two units would be tractor-yarded. About 0.5 miles of temporary road[3] would be constructed for the remaining portions of Deep Cut, but 4.89 miles of existing roads would be inactivated and 0.6 miles of existing road would be obliterated. Road closure consists of closing roads,

[3] Temporary roads are constructed, used for logging, and decommissioned within the same dry-season.

pulling culverts, water barring at frequent intervals, and otherwise reducing the risk of road erosion. None of the timber harvest or road construction would occur within RR.

*Middle Jackson*. The UNF proposes to harvest timber from about 92 acres of the Matrix land allocation in Middle Jackson, using the commercial thin prescription on the 6 remaining units in the Middle Jackson sixth field HUC (a part of the Upper South Umpqua Tier 1 Key Watershed). Depending on the unit, canopy closure is currently about 60 to 70% and would be reduced, on average, to about 50% by the harvest. Follow-up slash treatment would be predominantly underburning (184 acres) with hand-piling and burning in 75 acres. Most of the remaining yarding would be by partial-suspension cable with a small amount tractor-yarded. No new roads would be constructed for the remaining portion of Middle Jackson but 3.81 miles of existing roads would be upgraded including replacement of a stream-crossing culvert. In addition, 4.85 miles of existing road would be inactivated, and 0.22 miles of existing road would be obliterated. None of the timber harvest would occur within RR.

*Dixon*. This ERFO project, also known as site 02-02-95, was proposed in the Dixon-Golden sixth field HUC (a part of the Upper South Umpqua Tier 1 Key Watershed) to repair road damage caused by high flows in Dixon Creek in 1995, and to prevent further road damage. Funding for ERFO projects comes from the Federal Highway Administration (FHWA) and is specific to identified ERFO sites. As a consequence, the UNF cannot repair, decommission, or conduct other road-related restoration activities with ERFO funding at locations other than those specified by the FHWA.

In January, 1995, water was diverted from Dixon Creek across a private driveway and down the 1610 road when the capacity of the culvert was exceeded during a peak flow event. Water diverted from the creek scoured the ditchline for about 750 feet and washed road surface gravel and a portion of the road shoulder into the creek. The UNF proposes to build a 50-foot long gabion structure at the washout site and then fill behind the structure and restore the road width. In addition, the UNF would replace the Dixon Creek culvert with a concrete bridge (with poured abutments and a pre-cast deck). A total of about 200 cubic yards of riprap would be placed to protect the ends of the bridge abutments (each about 65 feet in length) from scour and about 100 feet of Dixon Creek would be realigned upstream and under the bridge to reduce turbulence and scouring by high flows at the road crossing. In addition, portions of the road and driveway would be paved or re-rocked, two cross drain culverts on the 1610 road would be replaced, and ditchlines would be renovated. Traffic would be routed around the bridge site during construction by the placement of a temporary bypass consisting of rock fill and a culvert just upstream of the bridge site. Two substantial trees—a Douglas-fir and an alder, each roughly 6 inches in diameter—would be removed from the streambank just above the road crossing to facilitate construction, along with some smaller woody vegetation (willows and small alders) both above and below the road crossing. Work within the Dixon Creek channel would be restricted to the ODFW in-water work period of July 1 through September 15. Dixon Creek should be dry, or nearly so, during this period. The UNF's contractor will also be required to take appropriate actions to minimize or prevent erosion and stream sedimentation/contamination.

*Site 5*. This ERFO project, also known as site 02-05-95, was proposed in the Lower Drew Creek sixth field HUC (a part of the Upper South Umpqua Tier 1 Key Watershed) to repair road damage caused by high flows in a perennial, unnamed tributary of Drew Creek in 1995, and to prevent further road damage. The 36-inch culvert, which passes the non-fishbearing stream under the 3201-814 road, plugged during high flows in January, 1995, causing water to flow over the road and wash away a portion of the downstream side of the road fill and some of the road surfacing rock. The UNF proposes to restore the eroded fill slope to the original dimensions, armor the slope and road, install a flared fitting on the culvert inlet, and resurface the road at the stream crossing. All of the work except for installation of the inlet flare fitting would be outside of the stream channel, but work within the stream channel would be restricted to the ODFW in-water work period of July 1 through September 15. The UNF's contractor will also be required to take appropriate actions to minimize or prevent erosion and stream sedimentation and contamination.

*Whitecap/Shadow*. While the UNF originally consulted separately on Whitecap and Shadow, most subsequent UNF documentation has treated these sales as one entity; NMFS will also consider the sales in combination. In the remaining portions of Whitecap/Shadow (Whitecap), the UNF proposes to harvest timber from about 586 acres of previously harvested, second-growth stands (from about 40 to 55 years-old) in 10 units in the White Creek and Black Creek sixth field HUCs of the Little River Adaptive Management Area.

The harvest prescription would be predominantly commercial thinning from below, but in up to 59 acres (distributed in five of the units) the UNF proposed to cut and remove all trees in blocks of about 5 acres each for a soil decompaction study. About 50 acres of these blocks remain to be harvested. For a songbird study, smaller clearcut openings of from one-tenth to one-quarter acre would be interspersed among the commercial thinning areas in four of the units (a total of about 32 acres for the remaining harvest). Also, for a western redcedar establishment and growth study, about 12 circular one-quarter acre openings would be created in the commercial thinning areas of two of the remaining units. Finally, all Douglas-fir within 60 feet of stands of Douglas-fir with laminated root rot would be harvested in all the units. This harvest would create 30 to 40 partial openings of one-half to three-quarters acres, hardwoods and conifers other than Douglas-fir would remain; about 7 acres of such openings remain to be harvested. Thus, within the 527 acres of commercial thinning would be openings of from one-tenth to three-quarters acres for a total of about 42 acres. The commercial thinning with opening prescription would extend into the RR of several perennial and intermittent streams within and adjacent to the sale units. No-cut buffers along the streams would be established: A minimum of 50 feet (and up to 170 feet) in width on streams with well-defined channels, while poorly-defined streams would receive no-cut buffers of at least 20 feet in width. Approximately 70 of the 527 acres of commercial thinning with openings would occur within the RR, which is equivalent to about 6 cumulative acres of RR openings. None of the 59 acres cleared for the soil decompaction study would be within RR.

Yarding of harvested timber would be accomplished by partial (one-end) uphill suspension cable with the remainder tractor-yarded. Some or all of the timber in all of the units would be yarded with tops attached so that most of the slash could be disposed off-site, but a great deal of slash would still be hand piled and burned on the units. After about half (30 acres) of the 5-acre clearcut openings are mechanically decompacted, all 59 acres would be planted with sugar pine seedlings. The openings created for the western redcedar study would be planted with seedlings of that species, while areas cleared of laminated root rot-infected trees would be planted with incense cedar seedlings, and western redcedar and Pacific yew seedlings would be planted in RR in two units. The UNF also proposes to place large wood (about 80 trees) into the lower one mile of White Creek by helicopter; down trees and logs will also be placed in a small downcut stream channel in Unit 5. Canopy closure in the remaining units of Whitecap would decrease from the current 90-100% to 75-80% in the commercial thinning areas and temporarily to 0% closure in the clearcut openings (Alan Baumann, Silviculturist, UNF, pers. comm., June 17, 1999). No road construction remains to be completed for Whitecap but some post-harvest road maintenance will occur and relief culverts will be placed in several locations in Unit 6.

**Biological Information and Critical Habitat**

The biological requirements, including the elements of critical habitat, of each of the ESUs are discussed in NMFS (1997b and c). Environmental baseline conditions in the Umpqua Basin are discussed in Johnson *et al*. (1994), NMFS (1997c, at 2-7) and NMFS (1997b, at 13-14). Cumulative effects, as defined under 50 CFR 402.02, are discussed for the Umpqua Basin in NMFS (1997b, at 40-43). These respective analyses are incorporated herein by this reference. NMFS is not aware of any newly available information that would materially change these previous analyses of biological requirements, environmental baseline or cumulative effects for the purpose of this Opinion. Some general biological information is provided below.

UR cutthroat trout inhabit the Umpqua River Basin of southwest Oregon. The ESU consists of resident, potamodromous, and anadromous life histories. Individuals of all three forms have the potential to inhabit the Middle South Umpqua, Jackson Creek, Elk Creek, and Little River watersheds. UR cutthroat trout are known to be year-round inhabitants—using migration, rearing, feeding, spawning, and incubation habitat—of all of the subject watersheds. Historically, adult anadromous cutthroat trout passed Winchester Dam on the North Umpqua River predominantly from late June through November, with peaks in mid-July and mid-October. Juvenile outmigration is thought to occur chiefly from March through October (Johnson *et al*. 1994).

OC coho salmon are an anadromous species which typically have a three-year life-cycle and historically occurred in all five subject watersheds. Adult OC coho salmon spawn in the late fall and winter, with fry emergence occurring the following spring. Juvenile coho salmon rear for about a year in natal streams and then outmigrate to the ocean as smolts in the spring. Some male coho return to

freshwater to spawn the fall and winter of the same year as their smolt migration, but the majority of adult OC coho salmon do not return to spawn until having spent about 18 months in the ocean. Thus, an active OC coho salmon stream would be used for some life-stage—as migration, rearing, feeding, spawning, and incubation habitat—year-round.

OC steelhead may exhibit anadromy or freshwater residency. Resident forms are usually referred to as rainbow trout, while anadromous life forms are termed steelhead; both forms likely occur in all five subject watersheds. Steelhead typically migrate to marine waters as smolts in the spring after spending two years in freshwater. They reside in marine waters for two to three years prior to returning to their natal stream to spawn as 4- or 5- year-olds. Unlike salmon, steelhead do not necessarily die after spawning (which occurs in the winter through early spring) and may survive to spawn two or more times. Most or all adult steelhead in the three South Umpqua basin watersheds are winter-run and likely enter freshwater in the late fall or winter. Both winter-run and summer-run steelhead (which enter freshwater in the spring, summer, or fall) are known to occur in the Little River watershed, so adult steelhead from this watershed enter freshwater nearly year-around. Thus, as with OC coho salmon, an active OC steelhead stream would be used for some life-stage—as migration, rearing, feeding, spawning, and incubation habitat— year-round.

The UNF's watershed analysis (WA) for Jackson Creek (TRD 1995b) shows that approximately 70 miles of stream are inhabited by anadromous or resident salmonids, including OC coho salmon, OC steelhead, and UR cutthroat trout. The Little River WA (NURD and BLM 1995) documents that roughly 48 miles of habitat in this watershed are used by anadromous fish and another 70 miles are used by resident fish. Similar estimates were not available for the Middle South Umpqua or Elk Creek watersheds, but each likely provide dozens or scores of miles of habitat for anadromous and resident salmonids.

Although general information about the populations of UR cutthroat trout, OC coho salmon, and OC steelhead within the Middle South Umpqua, Jackson Creek, Elk Creek, and Little River watersheds is available (e.g., those streams likely inhabited, see above), specific information on the size and health of anadromous fish populations in the Umpqua Basin is often lacking or incomplete. Because of the general paucity of the type of knowledge which would allow the UNF and NMFS to assess the relative health of anadromous salmonid populations on a stream or watershed scale, and the fact that all fish species, populations, and individuals depend on adequate habitat, NMFS uses a habitat-based system in ESA consultation on land-management activities (NMFS 1997c). NMFS has applied the concept of properly functioning habitat condition to assess the quality of the habitat that fish need to survive and recover. This concept is discussed in the next section.

Site-specific environmental baseline descriptions and effects determinations were made by UNF personnel for each of the proposed actions. This information is found in the project-level (sixth field HUC) Matrices of Pathways and Indicators which were included in the BA. In addition, watershed-level information on UR cutthroat trout, OC steelhead, and OC coho salmon habitat is provided in the

fifth field MPIs, also included in the BA. NMFS generally concurred with these project and watershed-scale environmental baseline descriptions and effects determinations (exceptions are noted below) in the streamlined consultation process and NMFS considered them in addition to the broad-scale analysis conducted for NMFS (1997b).

**Evaluation of Proposed Actions**

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations (50 CFR Part 402). NMFS (1997a) describes how NMFS applies the ESA jeopardy and destruction/adverse modification of critical habitat standards to consultations for Federal land management actions in the Umpqua River basin.

As described in NMFS (1997a), the first steps in applying the ESA jeopardy standards are to define the biological requirements of UR cutthroat trout, OC coho salmon, and OC steelhead and to describe the species' current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline which is described in NMFS (1997c). The analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action area, which is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). If the net effect of the activities is found to jeopardize the listed species, then NMFS must identify any reasonable and prudent alternatives to the proposed action.

Biological Requirements. For this consultation, NMFS finds that the biological requirements of UR cutthroat trout, OC coho salmon, and OC steelhead are best expressed in terms of current population status and environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the species. The NMFS defines this properly functioning condition as the state in which all of the individual habitat factors operate together to provide a healthy aquatic ecosystem that meets the biological requirements of the fish species of interest. Individual, measurable habitat factors (or indicators) have been identified (e.g., water temperature, substrate, etc.), and the properly functioning values for these indicators have been determined, using the best information available. These indicators, when considered together, provide a summary of the conditions necessary to ensure the long-term survival of aquatic species.

The NMFS has assembled a set of these indicators in a form called the Matrix of Pathways and Indicators (MPI) (NMFS 1996). The MPI is a table that lists several categories or "pathways" of essential salmonid habitat, such as water quality, instream habitat elements, and flow/hydrology. Under these pathways are quantitative habitat indicators for which ranges of values are identified that correspond to a properly functioning condition, an at risk condition, and a not properly functioning

condition. Because these habitat measurements are more readily available than quantitative measurements of biological variables such as incubation success, standing crop, and growth rate, the NMFS and UNF are able to assess the health of stream reaches or watersheds based on the condition of their component indicators. Such an assessment provides a baseline description of the health of the stream/watershed, and also allows the effects of an action (e.g., a timber sale) to be evaluated.

Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are necessary for the survival and recovery of the listed species. It follows, then, that NMFS has determined that an action which would cause the habitat indicators of a watershed to move to a degraded condition, or one which further degrades a not properly functioning watershed, is also likely to jeopardize the continued existence of the listed species.

In addition to the use of the MPI at the watershed level to assist in making jeopardy determinations in Section 7 consultations, the NMFS also uses the MPI at the site or project scale. Assuming that a Federal agency determines that an action may affect listed species, either informal or formal consultation is required. To assist in this determination, the action agency prepares a project-level MPI. If no degrades occur at this scale, then the action is probably not likely to adversely affect individuals of a listed species, and an informal Section 7 consultation is appropriate. If the proposed action degrades any of the indicators at this smaller scale (often the sixth or seventh field HUC), then the action is generally considered to be a likely to adversely affect, and formal consultation must occur.

Current range-wide status of listed species under environmental baseline. NMFS described the current population status of the UR cutthroat trout in its status review (Johnson *et al.* 1994) and in the final rule (August 9, 1996, 61 FR 41514), and critical habitat for UR cutthroat trout was designated by the NMFS on January 9, 1998 (63 FR 1338). Although little change has occurred in UR cutthroat trout abundance or habitat conditions, the NMFS proposed on April 5, 1999 (64 FR 16397) to de-list this ESU because recent genetic information supports its inclusion in a larger Oregon Coast ESU, which is not thought to be in danger of extinction. NMFS described the current population status of OC coho salmon in a status review (Weitkamp *et al.* 1995), and in the final listing rule (August 10, 1998; 63 FR 42587). The effective listing date for OC coho salmon was October 10, 1999. Critical habitat for this ESU was proposed on May 10, 1999 (64 FR 24998). The current population status of OC steelhead was described in Busby *et al.* (1996), and in the final rule in which the NMFS determined that the status of the ESU did not warrant listing (63 FR 13347). The recent range-wide status of each of these species is summarized in NMFS (1997c).

Current status of listed species under environmental baseline within the action areas. As noted above, the "action area" includes all areas directly or indirectly affected by the proposed action. The general action areas for this BO can be defined as the Middle South Umpqua, Jackson Creek, Elk Creek, and Little River watersheds.

As noted above, UR cutthroat trout, OC steelhead, and OC coho salmon use the action areas as rearing, feeding, spawning, and incubation habitat, as well as a migration corridor. The environmental baseline of the action areas are dominated by conditions rated largely as not properly functioning or at risk (see watershed MPIs in BA). These conditions are primarily the result of past forest management and agricultural practice; in particular, timber harvest/clearing within riparian zones, large-scale clear-cut timber harvest, road construction (especially within riparian zones), and timber yarding in riparian zones and streams.

Indicators particularly at issue in this consultation are those which would likely be degraded by the proposed actions at the project scale, although the NMFS has also reviewed the UNF's maintain and restore effects determinations. For the projects reviewed in this biological opinion, sediment and turbidity was always determined to be degraded at the project scale by these actions. The substrate and water chemistry indicators were often thought to be degraded by the activities at the project scale, while the RR and large woody material indicators were each thought to be degraded at the project scale by one of the proposed actions. For the indicator baselines at the watershed scale, the sediment and turbidity indicator was listed as not properly functioning or at risk for all four watersheds; the substrate and water chemistry watershed baselines (where known/provided) were similarly rated. The baseline condition for RR and large woody material were also not properly functioning in the watershed where proposed activities were thought to degrade those indicators at the project scale.

Based on the best information available on the current status of OC coho salmon (Weitkamp *et al.* 1995, NMFS 1997c, and the final rule) and UR cutthroat trout (Johnson *et al.* 1994, NMFS 1997c, final rule, and proposed delisting rule), assumptions given the information available regarding population status, population trends, and genetics (Johnson *et al.* 1994, Weitkamp *et al.* 1995, NMFS 1997a, final listing rules, proposed delisting rule), and the relatively poor environmental baseline conditions within the action areas (see MPIs in BA and UR cutthroat trout and OC coho salmon final listing and proposed critical habitat rules), NMFS finds that the environmental baseline does not currently meet all of the biological requirements for the survival and recovery of the listed species within the action area. Actions that do not retard attainment of properly functioning aquatic conditions, when added to the environmental baseline, are necessary to meet the needs of the species for survival and recovery.

**Analysis of Effects**

The effects determinations in this opinion were made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting the effects of the actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). This assessment method (in which MPIs are assembled by action agency biologists) was designed for the purpose of providing information in a tabular form for NMFS to determine the effects of actions subject to consultation.

The UNF uses the MPI to make project-level effects determinations; i.e., whether an action is not

*likely to adversely affect* (NLAA) or *likely to adversely affect* (LAA) the ESA-listed species (in this case, UR cutthroat trout and OC coho salmon). If any of the indicators are thought to be degraded at the project level by the action, the action is determined to LAA. In turn, if a project was determined to LAA the ESA-listed species, then, based on the jeopardy criteria described in NMFS (1997b), the UNF must determine whether the project, when combined with the environmental baseline for the watershed over the long-term, is consistent with the ACS of the NFP. This consistency is condensed to a two-part test in NMFS (1997a, at 14): Is the proposed action in compliance with the standards and guidelines for the relevant land allocation, and does the proposed action meet all pertinent ACS objectives? The ACS objective consistency determination is made with the assistance of the MPI at the watershed scale.

Project-Level Effects. The UNF-provided MPIs for the effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area for each sixth field HUC affected by the proposed actions. The results of the completed checklist for the proposed action provide a basis for determining the effects of the action on the environmental baseline in the project area.

In this consultation, the UNF provided one or more project-level MPIs for each of the proposed actions. In general, the UNF determined that the actions would not degrade indicators at the project level, chiefly because the actions would maintain or restore Riparian Reserves.

*Skip*. The UNF provided MPIs for both the Lower Boulder/Pinnacle Creek and Ash Creek sixth field HUCs, and found that the *sediment and turbidity* and *substrate* indicators would be degraded by the proposed action in each of the HUCs. The UNF attributes these degrade checkmarks to a transitory increase in stream sedimentation due to culvert placement and removal and road obliteration. In addition, the UNF found that the *road density and location* and *landslide rate* indicators would be restored at the project level in the Lower Boulder/Pinnacle Creek subwatershed. According to information in the Boulder/Ash watershed analysis (TRD 1997), the road density in the Lower Boulder/Pinnacle Creek sixth field HUC is about 2.3 miles/sq. mile, which places the environmental baseline for this indicator in the at risk category. While a substantial part of the road to be obliterated is in the RR valley bottom, and is expected to provide substantial restoration of the site, the amount of road proposed for obliteration is not enough to move the indicator baseline fully from at risk to properly functioning for the sixth field HUC, which is the definition of a restore checkmark for the project-level MPI. Similarly, while the recontouring of the log landings and the road work proposed for this project should also have substantial restorative effects on the landslide rate indicator, it is not clear that the indicator baseline would be moved from not properly functioning to at-risk.

Because of the presence of the degrade checkmarks on the project scale, caused by possible short-term, localized sedimentation, the UNF determined that Skip is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effect determination.

*Coffin*. In the Coffin Creek sixth field HUC, the UNF found that at the project level, the *sediment and turbidity*, *substrate*, and *water chemistry* indicators would be degraded as a result of the action and all other indicators would be maintained. The UNF attributes these degrade checkmarks to a transitory increase in stream sedimentation as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drain upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and timber hauling. In Coffin, as well as the other timber sales and road-related actions in this biological opinion, RR buffers and/or road obliteration, inactivation, and upgrading techniques should prevent most, if not all, of the ground-disturbing activities from transmitting substantial amounts of sediment into stream channels.

The UNF checked the *water chemistry* indicator as a degrade for Coffin because of the possibility that the activities would increase the likelihood of vehicle accidents and therefore the potential for contaminant spills into waterways. Because of precautionary measures (described in the BA) which the UNF will take in these activities, the NMFS believes that likelihood of degradation of the *water chemistry* indicator is negligible.

While the proposed harvest would decrease canopy cover in the shortterm, Coffin should not affect the hydrologic recovery at the project (Coffin Creek subwatershed) scale in the short or longterm. This is because, based on the number of harvested acres in the project area over the last 35 years (TRD 1995 and BA) and assumptions of harvest type and rates of vegetative hydrologic recovery (i.e., canopy closure) (Minor 1999), the Hydrologic Recovery Percentage (HRP) would remain above 75% for the project area after treatments. The HRP relies on the fact that previously harvested units in the project areas regain canopy cover over time as trees grow. During rain-on-snow events, snow in and under the canopy tends to melt less quickly than snow on the ground that is subject to direct contact by warm air and rain. Thus, the retention and/or regeneration of substantial canopy is likely to slow the runoff of water during rain-on-snow events. Because rain-on-snow events cause many or most peak flows in the UNF, harvest prescriptions which retain the majority of canopy cover are also likely to contribute to the maintenance of peak flow characteristics. Actual vegetative hydrologic recovery of the subwatershed is likely to be higher than that calculated through the HRP, because the natural canopy closure of the subwatershed is probably less than those areas used in developing the procedure, and because the effect of partial harvest on hydrologic recovery is likely less than regeneration harvest (Minor 1999).

The EA and other documents included in the BA for Coffin discuss the landslide and surface erosion risk associated with the sale. A mass wasting index for the proposed sale was calculated in the EA as 15% greater than for the no action alternative due to the potential effects of cutting and yarding of timber. In a geological assessment of an early Coffin alternatives analysis, the geologist determined that alternatives with mass wasting index scores of 18, 29, and 32% greater than the "no action" alternative would not substantially increase the rate or frequency of mass wasting events in the analysis area, assuming that roadwork and harvest prescriptions were properly designed. The proposed action should meet the geologist's assumptions for Coffin because no new roads are proposed and substantial

road mileage would be upgraded, inactivated, and obliterated and the harvest prescription would retain most of the existing soil root strength while disturbing a minimal amount of soil. The effects of the sale on landslide risk should be less than those analyzed in the EA because some units have been deleted or modified. In addition, the retention of full RR widths would make it unlikely that any natural or management-cause landslides would transmit substantial amounts of sediment to stream channels, or if a landslide is large enough to carry to a stream channel, to ensure that substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Coffin is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effects determination.

*Deep Cut*. In the Deep Cut Creek sixth field HUC, the UNF found that on the project level, the *sediment and turbidity, substrate*, and *water chemistry* indicators would be degraded as a result of the action and all other indicators would be maintained. The UNF attributes the degrade checkmarks for *sediment and turbidity* and *substrate* to a transitory increase in stream sedimentation as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drainage upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and fuel treatments. As noted under Coffin, above, RR buffers and/or road work techniques should prevent most, if not all, of the ground-disturbing activities from transmitting substantial amounts of sediment into stream channels. Also, for reasons similar to those advanced under Coffin, above, the NMFS believes that likelihood of degradation of the *water chemistry* indicator is negligible.

While the proposed harvest would decrease canopy cover in the shortterm, Deep Cut should not affect the hydrologic recovery at the project scale (Deep Cut Creek subwatershed) in the short- or long-term. This is because the reasoning and calculations described for Coffin, above, are similar and therefore the HRP is expected to remain above 75% for the project area after the treatments. In addition, while the earthflow terrain of the sale area is more at risk of landslides and other mass wasting events than other geologic forms—whether management activities occur or not—only a half mile (two spurs) of temporary ridgetop road is proposed (but substantial road mileage would be upgraded, inactivated, and obliterated) and the harvest prescription would retain most of the existing soil root strength while disturbing a minimal amount of soil. In addition, specific areas identified as particularly at risk of mass wasting were excluded from sale units. Thus, the landslide risk associated with the remaining proposed harvest in Deep Cut should not be substantially greater than currently exists. If a landslide does occur on the sale units, whether natural or management-caused, the retention of full RR widths would make it unlikely that substantial amounts of sediment would be transmitted to stream channels. If a landslide does occur that is large enough to carry to a stream channel, substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Deep Cut is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effects determination.

*Middle Jackson*. In the Middle Jackson sixth field HUC, the UNF found that on the project level, the *sediment and turbidity, substrate,* and *water chemistry* indicators would be degraded as a result of the action and all other indicators would be maintained. The UNF attributes the degrade checkmarks for *sediment and turbidity* and *substrate* to a transitory increase in stream sedimentation as a result of the short-term cumulative effects of soil disturbance and surface erosion associated with road work (drainage upgrades, obliteration, culvert replacement, etc.), ground-based timber yarding, and fuel treatments. As noted under Coffin, above, RR buffers and/or road work techniques should prevent most, if not all, of the ground-disturbing activities from transmitting substantial amounts of sediment into stream channels. Also, for reasons similar to those advanced under Coffin, above, the NMFS believes that the likelihood of degradation of the *water chemistry* indicator is negligible.

While the proposed harvest would decrease canopy cover in the short-term, Middle Jackson should not affect the hydrologic recovery at the project Middle Jackson subwatershed scale in the short or longterm. This is because the reasoning and calculations described for Coffin, above, are similar and therefore the HRP is expected to remain above 75% for the project area after the treatments. In addition, while the earthflow terrain of sale area is more at risk of landslides and other mass wasting events than other geologic forms—whether management activities occur or not—no new roads are proposed (but substantial road mileage would be upgraded, inactivated, and obliterated) and the harvest prescription would retain most of the existing soil root strength while disturbing a minimal amount of soil. In addition, specific areas identified as particularly at risk of mass wasting were excluded from sale units. Thus, the landslide risk associated with the remaining proposed harvest in Middle Jackson should not be substantially greater than currently exists. If a landslide does occur on the sale units, whether natural or management-caused, the retention of full RR widths would make it unlikely that substantial amounts of sediment would be transmitted to stream channels. If a landslide does occur that is large enough to carry to a stream channel, substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Middle Jackson is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effects determination.

*Dixon*. The UNF used an MPI which evaluated the Dixon Creek sixth field HUC baseline conditions and project effects for this action. The UNF found that on the project level, the *sediment and turbidity, substrate,* and *water chemistry* indicators would be degraded, while the *drainage network* indicator would be restored and all other indicators would be maintained as a result of the action. The NMFS notes that riparian vegetation would be removed along about 150 linear feet of streambank and replaced with riprap, so that a degrade checkmark is also appropriate for the *RR* indicator.

The UNF attributes the degrade checkmarks for *sediment and turbidity* and *substrate* to a transitory increase in stream sedimentation due to in-channel modifications (fill and removal of temporary creek crossing, excavation of the existing culvert, and realignment of the creek). As noted above, the *RR* indicators would be degraded by the replacement of riparian vegetation with riprap; but, because Dixon Creek is intermittent in the summer and because only two substantial trees are being removed, the *maximum water temperature* and *large woody material* indicators should be maintained. Also, for reasons similar to those advanced under Coffin, above, the NMFS believes that likelihood of degradation of the *water chemistry* indicator is negligible. The NMFS agrees that the replacement of the culvert would be, on the whole, a restorative action in that it would lessen the likelihood of road failure in the longterm.

While the renovation of ditchlines and replacement of two crossdrain culverts should improve the environmental baseline for the *drainage network* indicator, the proposed action would not be enough to move the MPI baseline indicators from not properly functioning to at risk for the subwatershed. Because of the presence of the degrade checkmarks on the project scale, however, the UNF determined that Dixon is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effect determination.

*Site 5*. For Site 5, in the Lower Drew Creek sixth field HUC, the UNF found that on the project level, the *sediment and turbidity, substrate*, and *water chemistry* indicators would be degraded as a result of the action and all other indicators would be maintained. The UNF attributes the degrade checkmarks for *sediment and turbidity* and *substrate* to a transitory increase in stream sedimentation due to excavation around the culvert. For reasons similar to those advanced under Coffin, above, the NMFS believes that likelihood of degradation of the *water chemistry* indicator is negligible. The NMFS agrees that the replacement of the culvert would be, on the whole, a restorative action in that is would lessen the likelihood of road failure in the long-term. Because of the presence of the degrade checkmarks on the project scale, the UNF determined that the Site 5 road work is LAA UR cutthroat trout and OC coho salmon. The NMFS concurs with the UNF on this project-level effect determination.

*Whitecap*. The UNF found that on the project level (represented by MPIs for the White Creek and Black Creek sixth field HUCs), the *sediment and turbidity* indicator would be degraded, the *large woody material* and *RR* indicators would be both degraded in the shortterm and restored in the longterm; the remaining indicators for Whitecap would be maintained. The degrade checkmark for *sediment/turbidity* is likely due to a transitory increase in stream sedimentation as a result of effects of soil disturbance and surface erosion from yarding and road activities. Ground disturbance due to timber yarding should actually transmit little, if any, sediment to stream channels because of the "light touch" harvesting and yarding methods should disturb little soil and because the no-cut buffers should filter out most or all sediment. Little sediment/turbidity would also be generated by the remaining road-related work. Some turbidity and/or sediment is also likely to be generated in the process of large wood placement in streams.

Regarding the degrade and restore determinations for *large woody material* and *RR*, the NMFS agrees that the thinning of trees within the RR would lessen, in the short-term, the amount of wood available to the stream channels. In the long-term, however, the proposed actions are likely to accelerate the development of late seral old growth in the RR, a restorative activity. We do not believe, however, that the proposed actions would be sufficient to fully move the *large woody material* indicator baseline from at risk to properly functioning (in both subwatersheds), or to move the *RR* indicator baseline from not properly functioning to at risk (in the White Creek subwatershed). The environmental baseline for *RR* in the Black Creek subwatershed is already properly functioning.

While timber harvest has the potential to increase peak flows by reducing vegetative hydrologic recovery below a threshold value (see discussion under Coffin, above), the reduction in canopy closure due to Whitecap would likely not be sufficient to affect streamflows. Canopy closure in the commercial thinning areas would not drop below the fully recovered level while the area of one-tenth to 5 acre openings that would be temporarily reduced to 0% canopy closure would not be enough to substantially reduce the current high level of vegetative hydrologic recovery in either the White Creek or Black Creek subwatershed.

Mass wasting risk is documented in the BA as low to low/moderate in most of the remaining harvest units; the land underlying units 1 and 2, however, is considered to be at moderate/high and moderate risk of mass wasting, respectively. Even in these two units, however, the harvest prescription would retain most of the existing soil root strength while disturbing a minimal amount of soil. Thus, the landslide risk associated with the remaining proposed harvest in Whitecap should not be substantially greater than currently exists. If a landslide does occur on the sale units, whether natural or management-caused, the dense tree stands remaining after RR harvest would make it unlikely that substantial amounts of sediment would be transmitted to stream channels. If a landslide does occur that is large enough to carry to a stream channel, substantial amounts of large woody material from the RR and sale unit would accompany the sediment.

Because of the presence of the degrade checkmarks on the project scale, the UNF determined that Whitecap is LAA UR cutthroat trout. The NMFS concurs with the UNF on this project-level effects determination.

Watershed-Level Effects. In the BA, the UNF provided watershed-scale MPIs and ACS consistency reviews which evaluated each of the nine actions. The watershed-scale MPIs evaluate the effects of the proposed action on habitat indicators in the fifth field HUC relative to the long-term environmental baseline. While many actions, including those that may be beneficial in the longterm, have shortterm, small-scale adverse effects, only those actions with adverse effects which are significant at the watershed scale over a long period would receive a degrade checkmark. It is important to realize that

both active and passive restoration activities contribute to the environmental baseline. In particular, the passive restoration that will occur over the long-term (at least a decade, see above), especially in RRs, is a principal component of the watershed recovery aspect of the NFP. The role of RRs, LSRs, etc., in restoration of watersheds is described in USDA and USDI (1994) and in NMFS (1997b).

The ACS consistency reviews included a description of how the proposed projects compared to the applicable NFP standards and guidelines (S&Gs) for the listed ESUs and how the proposed projects complied with the nine ACS objectives for those ESUs. Because there is strong correspondence between the habitat indicators of the MPI and the ACS objectives, it is likely that if none of the habitat indicators in the watershed level MPI is degraded by an action, then compliance with ACS objectives for the ESUs is also achieved. In the descriptions below, only those MPI habitat indicators which were determined to degrade at the project scale (usually sixth field HUC) are discussed. Similarly, the S&Gs and ACS objectives which may be of issue are noted. Whether discussed below or not, information on all of the habitat indicators, relevant S&Gs, and ACS objectives was provided in the UNF's BA and was considered in our analysis.

*Middle South Umpqua Watershed.* For this watershed, a part of the Upper South Umpqua Tier 1 Key Watershed under the NFP, the UNF has proposed to conduct the Skip KV project. The UNF determined that all of the habitat indicators would be maintained or restored at the watershed scale, despite the project-level MPI degrades which were recorded. As noted under Project-Level Effects, above, the *sediment and turbidity* indicator was thought to be degraded as a result of road upgrading, inactivation, and obliteration. However, per the project-level discussion of Skip, above, these degrades are not thought to be consequential in the long-term. The relatively small amount of sediment that is likely to enter watercourses as a result of the proposed activity would not likely be distinguishable from background natural sedimentation and sedimentation from previous human activities. In fact, the reduction in active road density and road improvements are beneficial over the long-term. The road work should also reduce sediment and turbidity in the long-term by stabilizing eroding road embankments, as should the proposed log landing contouring. See also the discussion of stream sedimentation in the Middle South Umpqua watershed, above. The UNF marked restores in the watershed-level MPI for *physical barriers*, *road density/location*, and *RR*. While the NMFS agrees that some level of restoration for these indicators will occur as a result of the proposed actions, the amount of restoration proposed would not be sufficient to move the indicator baselines from not properly functioning to at risk at the watershed level.

According to information synthesized by the UNF from the Deadman/Dompier (BLM 1997), Dumont (TRD 1995a), Deadman/Francis (TRD 1997a), Buckeye/Zinc (TRD 1996a), and Boulder/Ash (TRD 1997b) WAs, about 85% of the Middle South Umpqua watershed is in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, only about 12% of the watershed is privately-owned; the remainder of the watershed is managed by the UNF (about 71%) or BLM (about 17%). Also, about 45% of the land in the Middle South Umpqua watershed will be protected as LSR and at least 23% of the remaining Federally-

managed land is RR. Therefore, a substantial portion (close to two-thirds) of the Federal land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed action should not reduce long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, and would slightly reduce road density. Thus, when the proposed actions is considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and the ACS Consistency Review for Skip, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would be achieved. The road upgrading, inactivation, and obliteration proposed are in response to ACS objectives and S&Gs RF-2 and RF- 3 and are consistent, as is the log landing recontouring, with the Middle South Umpqua's status as a Key Watershed. The Boulder/Ash WA specifically recommends that the UNF minimize sediment production and erosional processes and reduce road densities in the subject subwatersheds and the watershed as a whole. Skip responds to this recommendation. While other areas of the UNF may be of higher priority for road upgrading, inactivation, or obliteration, the funding for the proposed activities is specific to the KV sale area and thus is not transferable to other locations on the UNF.

*Jackson Creek watershed*. The Coffin Creek, Deep Cut Creek, and Middle Jackson timber sales are proposed for the Jackson Creek watershed, which, as part of the Upper South Umpqua River basin, is a Tier 1 Key Watershed. For this action, the UNF determined that all of the habitat indicators would be maintained at the Jackson Creek watershed scale, despite the project-level MPI degrades which were recorded. As noted under Project-Level Effects, above, the *sediment and turbidity* and *substrate* indicators were thought to be degraded chiefly as a result of road-related actions. However, per the project-level discussion of Skip, above, these degrades are not thought to be consequential in the long-term; in fact, the reduction in active road density and road improvements are beneficial over the longterm. Stream sedimentation caused by surface erosion from timber harvesting and yarding should be minimal to nonexistent because: Trees and other substantial vegetation (especially ground cover and shrubs), duff, and slash would be left in the units after harvest; intact or nearly intact no-cut RR buffers would be maintained; and vegetation (especially ground cover) grows back quickly. All of these factors would likely act to filter and/or stabilize soil disturbed by harvest activities and thus decrease or eliminate the likelihood of sediment transmission to streams. See also the discussion of stream sedimentation in the Middle South Umpqua watershed, above. As noted under Project-Level Effects, above, the *water chemistry* indicator should not be affected by the proposed ERFO projects.

According to the Jackson Creek WA (TRD 1995b), about 83% of the Jackson Creek watershed was in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, only about 6% of the Jackson Creek watershed is privately-owned; the remainder of the watershed is managed by the UNF. Also, about 60% of the Federally-managed land in the Jackson Creek watershed will be protected as LSR, Wilderness, or

Research Natural Area and a substantial amount (at least 25-30%) of the remaining Federally-managed land is RR. Therefore, a substantial portion (close to three-quarters) of the Federal land—and all of the RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed actions should not reduce long-term vegetative hydrologic recovery, should reduce long-term stream sediment input without a substantial short-term increase, and would slightly reduce road density. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and ACS consistency review for the proposed actions, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would also be achieved. Specifically, the road upgrades, inactivation, and obliteration proposed are in response to ACS objectives and S&Gs RF-2 and RF-3, and are consistent with Jackson Creek's status as a Key Watershed. The Jackson Creek WA specifically recommends the proposed types of silvicultural activities in all three of the subwatersheds in order to meet the desired future conditions for these areas. While the road work proposed with the timber sales does not appear to be of the highest priority in the Jackson Creek, it does comply with the WA recommendations that the risk of landslides and culvert plugging potential be reduced in each of the subwatersheds and that headwater stream extension be reduced in the Deep Cut and Middle Jackson subwatersheds. Other areas of the UNF may be of higher priority for road repair, inactivation or obliteration, but the funding for the proposed road work is specific to the timber sale areas and thus is not transferable to other locations on the UNF.

*Elk Creek watershed*. For this watershed, a part of the Upper South Umpqua Tier 1 Key Watershed under the NFP, the UNF has proposed to conduct the Dixon Creek Bridge and Site 5 ERFO road repair projects. The UNF determined that all of the habitat indicators would be maintained or restored at the watershed scale, despite the project-level degrades which were recorded for each of the ERFO projects. As noted under Project-Level Effects, above, the *sediment and turbidity*, *substrate*, and *RR* indicators were thought to be degraded as a result of the bridge and gabion construction, road and ditch repair, and culvert modifications. Per the project-level discussion of the ERFO projects, the ERFO road repairs should reduce sediment and turbidity in the long-term by reducing the likelihood of water diversion onto the road and stabilization of eroding road embankments and ditchlines. See also the discussion of stream sedimentation in the Middle South Umpqua watershed, above. The minor degradation of the RR at the bridge site—because of the small area affected and at least some long-term passive active and/or passive recovery—should not be significant on the watershed scale. As noted under Project-Level Effects, above, the *water chemistry* indicator should not be affected by the proposed ERFO projects.

According to the Elk Creek WA (TRD 1996b), about 38% of the Elk Creek watershed is privately-owned; the remainder of the watershed is Federally-owned and managed. About 42% of the Federally-managed land in the Elk Creek watershed will be protected as LSR and about 37% of the remaining Federally-managed land is RR. Therefore, about 63% of the Federal land— and all of the

RR, the most important portion from an anadromous fish viewpoint—will be protected from non-restorative activities (only incidental use of riparian areas by cattle is anticipated or will be allowed). The proposed actions should not reduce long-term hydrologic recovery, should not substantially affect RR recovery, and should reduce long-term stream sediment input without a substantial short-term increase. Thus, when the proposed actions are considered in the context of baseline conditions and foreseeable passive restoration of a large majority of the watershed, recovery of the watershed should not be retarded.

Based on the EA and ACS consistency review for the proposed actions, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would also be achieved. The bridge construction and other road work proposed are in response to ACS objectives and S&Gs RF-2 through RF-6. Site 5 is within the Lower Drew Creek sixth field HUC, which was identified in the WA as a priority area for road decommissioning and rehabilitation to reduce sediment input to streams. The repair of Site 5 would rehabilitate this site to some extent by reducing the long-term risk of sedimentation and road failure. Funding for the proposed repair of the sites is specific to the identified sites and thus is not transferable to other locations on the UNF, nor would the repairs tend to preclude road decommissioning at a later date if funding becomes available.

*Little River watershed*. For this non-Key Watershed, the UNF has proposed to conduct Whitecap and determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level degrades which were recorded. As noted under Project-Level Effects, above, the *sediment and turbidity* indicator was thought to be degraded primarily by road maintenance and upgrading and in-stream wood placement. However, per the project-level discussion of Skip, above, these degrades are not thought to be consequential in the longterm. In fact, the road drainage improvements and large woody debris placement are beneficial in the longterm. Stream sedimentation caused by surface erosion from timber harvesting and yarding should be minimal to nonexistent because: Trees and other substantial vegetation (especially ground cover and shrubs), duff, and slash would be left in the units after harvest; no-cut buffers would be maintained within the RR; and vegetation (especially ground cover) grows back quickly. All of these factors would are likely act to filter and/or stabilize soil disturbed by harvest activities and thus decrease or eliminate the likelihood of sediment transmission to streams. See also the discussion of stream sedimentation in the Middle South Umpqua watershed, above. The short-term project-level degrades and long-term restores for the *large woody material* and *RR* indicators was discussed in the Project-Level Effects section, above. The long-term effects on these indicators should be positive.

According to the Little River WA (NURD and BLM 1995) and the Little River fifth field HUC assessment (included in the BA), about 37% of the Little River watershed is privately-owned; the remainder of the watershed is managed by the UNF (about 48%) or BLM (about 15%). About 76% of the Little River watershed is in a vegetative condition (either the late successional or stem exclusion stages) which suggests vegetative hydrologic recovery. In addition, a minimum of 25% of the Federal forest land in the Little River watershed, which is classified as an Adaptive Management Area, would

be protected as RR because the actual proportion of RR in the watershed is substantially higher as much of the RR protecting intermittent streams has not been incorporated into the database (Barbara Fontaine, Resource Planner, NURD, pers. comm., March 24, 1999). Therefore, the watershed is currently vegetatively hydrologically recovered, the proposed action would not decrease the short-term or long-term hydrologic recovery of the watershed, and all of the RR—the most important portion of the watershed, from an anadromous fish viewpoint—will be protected from non-restorative activities. The proposed action should not reduce project-level or watershed-level long-term vegetative hydrologic recovery, would slightly increase instream and riparian LWD, and should slightly reduce long-term stream sediment input road density and stream extension. Thus, when the proposed action is considered in the context of baseline conditions and foreseeable passive restoration of a large portion of the watershed, recovery of the watershed should not be retarded.

Based on the EA and the ACS consistency review for Whitecap, it appears that all of the relevant S&Gs would be observed by the UNF and that compliance with the nine ACS objectives would be achieved. While Little River is not a Key Watershed, the funding for the proposed large wood placement and road work is tied to the timber harvest and thus could not be used in a Key Watershed where the UNF's restoration efforts may be of a higher priority. The Little River WA recommends that management activities should move biological and physical conditions towards the reference conditions. The reduction in fuel loading and acceleration of the achievement of late seral habitat specifically is recommended in the WA for the Black and White Creek area. In addition, the WA recommends that previously harvested riparian areas be treated to enhance tree growth and stand diversity. The primary harvest prescription (thinning from below), as well as the songbird, western redcedar, and laminated root rot opening treatments would each enhance tree growth and/or stand diversity. More generally, the WA recommends actions which would help to protect and restore riparian areas, water quality, and streamflow and sediment regimes. Whitecap is consistent with all of these recommendations.

**Effects Summary**

NMFS has considered the applicability of these analyses to each of the actions identified in the BA and in this BO. The NMFS is not aware of any other special characteristics of the particular sales that would cause greater or materially different effects on the subject salmonid species and their habitat than is discussed in these references. Similarly, NMFS is not aware of any newly available information that would materially change these effects analyses. In that portions of all of the watersheds discussed in this BO are privately-owned, the NMFS assumes that the cumulative effects of non-Federal land management practices will continue at similar intensities as in recent years (NMFS 1997b, at 41-42).

The effects of the actions on UR cutthroat trout, OC coho salmon, OC steelhead, and their habitat are presented in the BA prepared by the UNF; specifically in the project and watershed-level MPIs, BEs, ACS consistency reviews, and EAs. NMFS finds those descriptions to be adequate for this analysis. Based on this information, the NMFS does not consider these actions to be likely to result in more effects than expected or considered in NMFS (1997b). In particular, the UNF determined, and the

NMFS concurred, that relevant NFP S&Gs would be followed and that ACS objectives would be met at the watershed scale and over the longterm when the effects of the proposed actions are combined with the environmental baseline. This ACS consistency determination was made because the UNF showed that, despite the potential short-term adverse effects of their proposed actions, watershed habitat indicators would be maintained or restored over the longterm.

The NMFS expects that ACS objectives which may be affected by the subject actions will be met for the following reasons: (1) Potential sediment input and hydrologic effects from the small amount of proposed temporary road construction will be minimized by implementation of appropriate mitigation measures, and temporary roads would not occur in RR; (2) potential sediment input from proposed road repair, upgrade, inactivation, obliteration, reconstruction, and bridge construction will be minimized by implementation of appropriate Best Management Practices (specific procedures that minimize the adverse environmental effects of activities) and the long-term effects of these actions should be beneficial because of lessened sediment and hydrologic effects from existing and former roads; (3) potential sediment input associated with timber harvest and yarding should be minor because all or nearly all surface erosion should be filtered out before reaching streams and because harvest and yarding methods should not substantially increase the risk of landslides that would transmit sediment to stream channels;
(4) thinning in RR in Whitecap should reduce the risk of catastrophic fire and may also accelerate attainment of large trees to serve as a future source of large woody debris for streams in the sale area—otherwise, no vegetation treatments or timber harvest will occur in RR; (5) the ground compacting activity associated with timber sales (partial suspension and tractor-yarding) will be mitigated through ripping and water-barring of skid trails and little of the yarding activity will occur in RR; and (6) the amount of canopy cover removed in the timber sales would be small compared to the existing canopy cover at both the project and watershed scales and with passive restoration, which will occur in the watersheds over the long-term, should not impair recovery of the watersheds. Despite the minor, short-term adverse effects, these actions maintain or restore essential habitat functions and will not impede recovery of salmonid habitat which is a long-term goal of the NFP.

**Section 7(a)(2) Determinations**

The NMFS concludes that, when the effects of these proposed site specific actions are added to the environmental baseline and cumulative effects occurring in the relevant action areas, they are not likely to jeopardize the continued existence of UR cutthroat trout, OC coho salmon, or OC steelhead.

Additionally, the NMFS concludes that the proposed actions would not cause adverse modification or destruction of UR cutthroat trout critical habitat or OC coho salmon proposed critical habitat. This is because our no jeopardy conclusion is based on the effects of the actions on salmonid habitat and because the adverse modification or destruction of habitat standard is defined similarly to the jeopardy standard. Because we have determined that the actions would not jeopardize the continued existence of UR cutthroat trout or OC coho salmon, it follows that critical habitat for these species would not be

adversely modified or destroyed. In other words, the MPIs include critical habitat elements and it was determined that these elements would not be degraded at the watershed scale (see above under Biological Requirements). In reaching these conclusions, NMFS has utilized the best scientific and commercial data available as documented herein and by the BA and documents incorporated by reference.

**Incidental Take Statement**

Effects resulting from timber sales and road-related activities are expected to be the sources of incidental take associated with the proposed actions covered by this BO. Because of the implementation of appropriate mitigation measures for these activities, sediment and hydrologic impacts are expected to be minimized.

Adverse effects of management actions such as these are largely unquantifiable in the short-term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though the NMFS expects some low level of incidental take to occur due to these actions, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves. The adverse effects of the actions, however, should be confined to the sub-watersheds in which the actions are proposed to occur.

The incidental take statement in NMFS (1997b) provided reasonable and prudent measures and terms and conditions to avoid or minimize the take of listed salmonids from beneficial road-related actions (pages 64 and 70) and road construction (pages 65 and 70-72) that may be applied to site-specific actions, if appropriate. NMFS hereby applies the findings, reasonable and prudent measures, and terms and conditions set forth in the Incidental Take Statement of NMFS (1997b) to the relevant site-specific actions. In addition, the following site specific term and condition is imposed:

1. For the Dixon Bridge ERFO project, the UNF shall ensure that site-level habitat indicators affecting UR cutthroat trout and OC coho salmon are not substantially affected in the longterm. Specifically, the UNF shall ensure that the removal of woody vegetation to allow placement of riprap does not increase peak water temperatures in Dixon Creek or adversely affect instream habitat and that modifications to the Dixon Creek channel do not impede adult or juvenile salmonid upstream passage. The UNF shall report to the UNF Level 1 Team, within 6 months of completion of the project, on the likely effects of the action on peak water temperature, in-stream habitat, and upstream passage, and shall propose any necessary monitoring of these habitat components to ensure that any adverse effects are shortterm in duration.

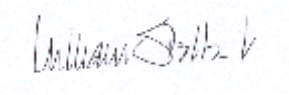
Because OC steelhead are a candidate species and therefore have no status under the ESA, this incidental take statement does not apply to this species. Should OC steelhead become listed at a future date, this incidental take statement would become effective for this species.

**Conclusions**

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). The UNF must reinitiate this ESA consultation if: (1) The amount or extent of taking specified in the incidental take statement above, is exceeded; (2) new information reveals effects of the action that may affect listed species in a way not previously considered; (3) the action is modified in a manner that causes an effect to the listed species that was not previously considered; or (4) a new species is listed or critical habitat designated that may be affected by identified action.

If you have any questions, please contact Dan Kenney of my staff in the Oregon State Branch Office at (541) 957-3385.

Sincerely,



William Stelle, Jr.
Regional Administrator

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